# Monthly Climate Statement — August 2013

**Key messages**

- Approximately half of Queensland is currently drought declared under State Government processes.
- For the next three-month period (August to October) there is a higher than normal probability of above-median rainfall.
- For the coming summer (November to March), the probability of dry conditions is lower than normal for most of the state, except for parts of south-eastern Queensland.

## Findings for August 2013

The Science Delivery Division of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) notes that, **for the next three-month period (August to October) there is a higher than normal probability of above-median rainfall. For the coming summer (November to March), the probability of dry conditions is lower than normal for most of the state, except for parts of south-eastern Queensland.**

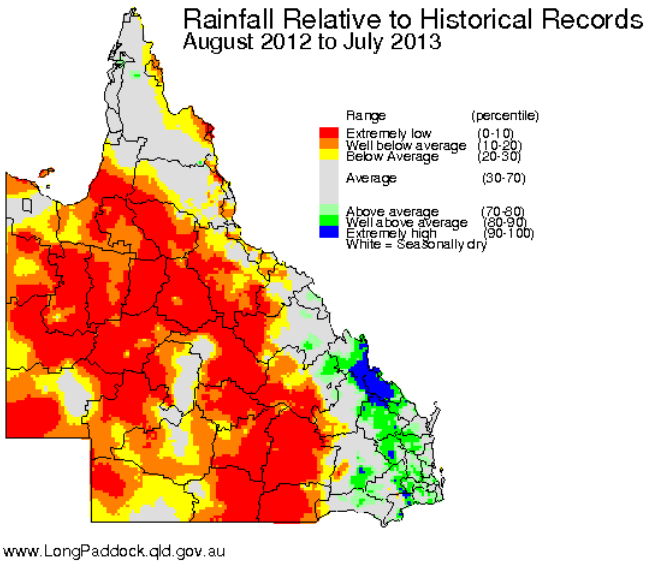
Seasonal forecasts are based on the current and projected state of the ENSO phenomenon and on factors which alter the impact of ENSO on Queensland rainfall (e.g. the Pacific Decadal Oscillation (PDO)). The PDO modulates the impact of ENSO on summer rainfall in Queensland.

Currently:

- The Southern Oscillation Index (SOI), a key atmospheric measure of ENSO, has been quite positive over the last three months (+8.0 in May, +10.6 in June and +7.4 in July). The three-month mean, from May to July 2013, is +8.7.
- The observed sea-surface temperature (SST) anomaly (-0.3 ºC) in the key Niño 3.4 region of the central equatorial Pacific, remained in the ENSO-neutral range in July.
- SSTs remain cooler than average in the eastern tropical Pacific.
- According to the Bureau of Meteorology, the currently cool SSTs in the eastern tropical Pacific are unlikely to develop into a La Niña event ('ENSO Wrap-Up' - 30 July).
- Of 25 international global climate models surveyed by the International Research Institute for Climate and Society in the USA, 67 per cent currently suggest that SSTs in the tropical Pacific Ocean will remain within the 'ENSO-neutral' range over the next three months (August to October). For the same period, the analysis shows 29 per cent of models entering the La Niña range and 4 per cent entering the El Niño range.
- Over the coming months, DSITIA will closely monitor ENSO indices including the SOI and the SST pattern in the Pacific Ocean.

Extensive areas of inland Queensland, and some northern regions, have experienced well-below average to extremely-low rainfall over the past six- and twelve-month periods.

Approximately 50 per cent of Queensland is currently (as at 1 July) drought declared. Quilpie, in south-west Queensland, is the most recent regional council area to be drought declared.



# Rainfall Outlook

There are various approaches used to provide rainfall outlooks. These approaches tend to differ in terms of the components of the climate system that are considered. For this reason, each approach may convey a different outlook, particularly for specific locations.

DSITIA uses two statistical schemes to develop its forecasts of seasonal rainfall:

- the experimental long-lead SPOTA-1 scheme, which integrates SST information, including indices of ENSO and the PDO; and
- the SOI Phase scheme, which relies solely on the SOI, an atmospheric measure of ENSO.

The experimental SPOTA-1 scheme provides long-lead probabilities of summer (November to March) rainfall for Queensland from mid-April through to mid-November each year. An updated outlook for summer 2013/14 is now available. This outlook takes into account a monthly ENSO index, as well as an index of March SST anomalies which reflect the current 'cool' phase of the PDO. For the coming summer (November to March), the SPOTA-1 scheme currently indicates that the probability of dry conditions is lower than normal for most of the state, except for parts of south-eastern Queensland. For much of south-eastern Queensland, the probability of dry conditions is slightly higher than normal and the probability of wet conditions is slightly lower than normal. This outlook will continue to be revised each month until November this year.

DSITIA's SOI Phase scheme provides probabilities of rainfall for the coming three-month season based on SOI values over the previous two months. The SOI Phase scheme currently indicates that the probability of above-median rainfall across most of Queensland is 50 to 70 per cent for the next three-month period (August to October). This analysis is based on the SOI being in a 'Consistently Positive' phase at the end of July, as discussed further in the Commentary on Rainfall Based on 'Phases' of the SOI.

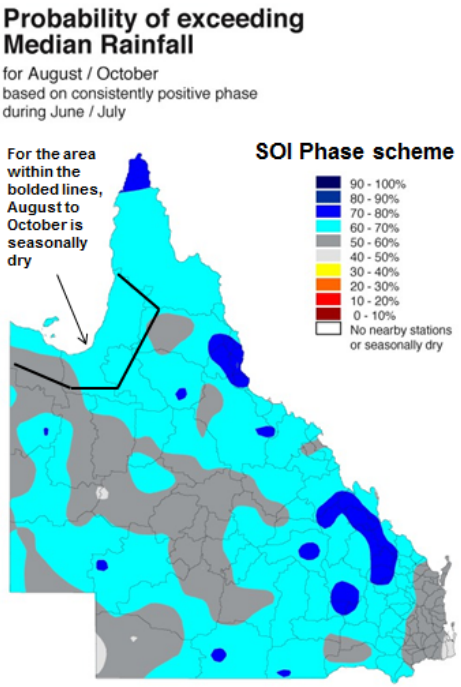
The SPOTA-1 and SOI Phase schemes indicate probabilities based on historical relationships. It is important that the probabilistic nature of seasonal outlooks is understood and long-term risk management is undertaken. For example, if an outlook indicates a 70 per cent probability of above-median rainfall, this also means there is a 30 per cent probability of below-median rainfall.

An increased risk of above- or below-median rainfall in Queensland will not necessarily result in above- or below-median rainfall occurring throughout all of the state (see Australia's Variable Rainfall poster, or the Department's archive of historical rainfall maps).

Each climate outlook scheme may have its own particular following. Although such schemes cannot provide outlooks with absolute certainty, users of the information who follow a skilful scheme should benefit from doing so in the long-term. Users should consider the historical track record of any scheme, and such information is becoming increasingly available. DSITIA's Long Paddock website provides an archive of SPOTA-1 reports and past commentaries on the SOI Phase scheme.

Whilst DSITIA places emphasis on the SPOTA-1 and SOI-Phase analyses, a much wider range of information from national and international agencies is also considered. DSITIA pays particular attention to the Bureau of Meteorology's 'ENSO Wrap-Up' which is updated fortnightly on the Bureau's website.

ENSO influences other climate variables apart from rainfall (e.g. temperature, pan evaporation and vapour pressure). This means that the impact of ENSO on crop or pasture growth can be stronger than on rainfall alone. The impact of ENSO on pasture growth, for example, is also dependent upon current pasture condition and soil water status. DSITIA's AussieGRASS model takes these factors into account in producing seasonal pasture growth probabilities.




For more information, please visit **www.longpaddock.qld.gov.au/seasonalclimateoutlook** or contact **stuart.burgess@science.dsitia.qld.gov.au**.